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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/671,055

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7590

01/05/2006

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EXAMINER

LEPISTO, RYAN A

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 01/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/671,055

Applicant(s)

ALGER ET AL.

Examiner

Ryan Lepisto

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2005.
2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-9 and 15-26 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 3-9 and 15-26 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/28/05.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. **Claims 21 and 26** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claim 21 recites the limitation "woven fiberglass bundles." There is insufficient antecedent basis for this limitation in the claim. To assure antecedent basis, the term "woven fiberglass bundle" should be used in the parent claim to make it clear as to which point in the method of forming the circuit board the "woven fiberglass bundles" are produced. For example in claim 20, if the "woven fiberglass bundles" are created after the "weaving the plurality of fiber bundles into a structure fabric" then the addition of "forming woven fiberglass bundles" added after that limitation would provide the necessary antecedent basis and make it clear as to what exactly the woven fiberglass bundles are in relation to the claim limitations.
- Claim 26 recites the limitation that the optical fibers in the pattern of optical fibers between the first and second layers are not woven into a layer but claim 15 recites the limitation a pattern of optical fibers are formed between first and second layers. Forming optical fibers between two layers forms an optical fiber woven into a layer, with the layer being the first and second layers. It is indefinite

how the fibers are not woven into a layer when the claim limitations recite just that and therefore this claim cannot be treated on its merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 8-9, 15 and 17-25** are rejected under 35 U.S.C. 102(b) as being anticipated by **Wiener (US 5,524,679)**. Wiener teaches a printed circuit board (Figs. 1-7, column 7 lines 22-24) comprising a matrix material comprising layers of warp strand fibers (10A-D) and layers of woof strand fibers (11A-D) both of which can be fiberglass (column 5 line 3), optical fibers (12A-F) integrated and embedded in a non-random grid (column 6 lines 52-53) with the matrix materials by being woven in between the strand layers (Fig. 1 for example) and held together by a resin (column 5 lines 32-34, column 6 line 60), forming a bundled layer. The printed circuit board is formed by forming the above structure and curing the stacked layers (column 6 lines 53-58) together using the resin that is impregnated into the structure. The board may then have added plurality of layers of components add to it (Fig. 7, column 7 lines 39-53).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Wiener as applied to claims 1-10, 15 and 17-23 above, and further in view of **Petrisko et al (US 5,851,403) (Petrisko)**.

Wiener teaches the printed circuit board described above.

Wiener does not teach expressly the fiberglass strand layers being prepreg. Wiener does teach that any desired material having physical properties desired for an application may be employed as the strands with Nicalon being used as an example (column 4 line 67 through column 5 line 2).

Petrisko teaches fiber strands of Nicalon that have been impregnated with a polymer (column 4 lines 29-33).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a prepreg Nicalon strand taught by Petrisko in the structure taught by Wiener.

The motivation for doing so would have been increase strength by using a material with greatly improved resistance to secondary oxidation and reduction of ohmic loss due to oxidation (Petrisko, column 4 lines 37-39).

4. **Claims 3-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Wilkinson et al (US 2003/0213044 A1)** (Wilkinson) in view of Wiener.

Wilkinson teaches an illuminated garment material (Figs. 1-2, paragraphs 0009-0011, 0014-0015) comprising a matrix material (10) comprising first and second layers (18) woven from a first set of fibers (woven or knit fibers) and an optical fiber (12) formed in a grid pattern that has pre-selected locations and spacing where the fiber couples to gems (22) or are end coupled to the outside environment (Fig. 2) from a fiber bundle (12) to fiber ends (16) that are positioned at 90° angles with respect to the bundles (12) and wherein the fiber (12) is sandwiched between the first and second layers (18) while not being woven into the layers (18) (see Figs. 1-2).

Wilkinson does not teach expressly that the matrix material is a circuit board.

Wiener teaches the matrix material described above and wherein woven fabrics with optical fibers can be used as a printed circuit board (column 7 lines 21-24).

Wilkinson and Wiener are analogous art because they are from the same field of endeavor, woven matrix materials housing optical fibers.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the matrix material as taught by Wilkinson as a printed circuit board as taught by Wiener since Wilkinson teaches that the matrix material may be utilized in other articles and mediums (paragraphs 0010, 0015).

The motivation for doing so would have been increase the flexibility of the material to be used in a variety of applications by employing it as a backplane (Wiener,

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column 7 lines 19-20) that can be used in a wide variety of optical and electrical applications.

5. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson in view of Wiener as applied to claims 3-6 above, and further in view of **Williamson et al (US 4,534,813)** (Williamson).

Wilkinson in view of Wiener teaches material described above.

Wilkinson in view of Wiener does not teach expressly the first and second woven fibers being oriented about 90° with respect to each other.

Williamson teaches processes of forming textile materials wherein it is taught that most textile materials are woven with the warp fibers crossing the woof fibers at a 90° angle (column 10 lines 6-8).

Wilkinson in view of Wiener and Williamson are analogous art because they are from the same field of endeavor, woven materials.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art that the woven or knit fibers taught by Wilkinson are conventionally woven and therefore have fibers with a 90° first and second fiber orientations as taught by Williamson.

The motivation for doing so would have been reduce cost and increase easy of manufacturing by using well known and widely used weaving and/or knitting techniques to create the fabric material.

Response to Arguments

6. Applicant's arguments filed 22 November 2005 have been fully considered but they are not persuasive.

- With regard to the 35 USC 112 rejection of claim 21: This rejection stands as described above.
- With regard to the rejection of claim 8: The applicant argues that Wiener only discloses optical fibers separate from the other fibers of a layer in special channels between the other fibers. Wiener teaches and shows sets of two fibers (Fig. 1 for example) that are disposed between the two layers and therefore constitute a bundle since the two fibers will be woven together between layers regardless if there is a structural gap between them or not.
- With regard to the rejection of claims 15 and 20: In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., an optical fiber between two different woven layers) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicant argues that a strand is not a woven layer, but the claim does not recite a woven layer, only a layer (in which the strand fibers taught by Wiener read upon).
- With regard to the rejection of claim 19: Wiener teaches the fibers are formed in a vertical grid pattern in Fig. 3 for example. The fibers being oriented in the

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same direction does not mean they are not in a grid. The fibers are not formed in a grid a crossing (vertical and horizontal) fibers, but this is not claimed either.

- With regard to claim 3: The added limitation that the fiber is not woven into either the first or second layer is mis-descriptive. If the fibers are at all routed between the layers at all it can be seen as woven.

7. Applicant's arguments with respect to claims 3-7 have been considered but are moot in view of the new ground(s) of rejection necessitated by applicant's amendment.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Lepisto whose telephone number is (571) 272-1946. The examiner can normally be reached on M-F 7:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RAZ

Ryan Lepisto

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Date: 12/19/05

Frank Font

Supervisory Patent Examiner

Technology Center 2800

**KAVEH KIANNI
PRIMARY EXAMINER**

